



# Proposed Messages for Indian Business Groups on CO<sub>2</sub> Emissions Mitigation

By  
Orlando Hernandez, GreenCOM Research Director  
Mary Paden, GreenCOM Resource Center Director,  
and  
Business & Industrial Research Division of the Indian  
Market Research Bureau

November 2000

GreenCOM  
*Communicating Climate Change in India*

# **Proposed Messages for Indian Business Groups on CO<sub>2</sub> Emissions Mitigation**

By Orlando Hernandez, and Mary Paden, GreenCOM

Based on Research by  
Rathina Kuman and Mohan Krishnan,  
Business & Industrial Research Division  
of the Indian Market Research Bureau, New Delhi

**November 2000**

**GreenCOM**  
**Environmental Education and Communication Project**  
**U.S. Agency for International Development**

**Communication Climate Change in India Project**  
Contract No. PCE-Q-00-93-00069-00, Task Order 807

This publication was prepared for USAID/India by the Environmental Education and Communication (GreenCOM) Project of USAID. The findings, conclusions, and recommendations expressed in this document do not necessarily reflect the official viewpoint of the U.S. Agency for International Development.

Written by:

Orlando Hernandez, GreenCOM Research Director

Mary Paden, GreenCOM Resource Center Director

Rathina Kuman and Mohan Krishnan, Indian Market Research Bureau

For more information, contact:

GreenCOM Project

Academy for Educational Development

1825 Connecticut Avenue, NW

Washington, DC 20009 USA

Tel: (202) 884-8000

Fax: (202) 884-8997

E-mail: [greencom@aed.org](mailto:greencom@aed.org)

Web site: [www.usaid.gov/environment/greencom](http://www.usaid.gov/environment/greencom)

GreenCOM publishes three series of reports designated in the diamond in the upper right cover.

- *Research* reports include assessments, formative research, focus group reports, summative research, and project evaluations.
- *Reports* are internal project reports including quarterly reports, final reports etc.
- *Products* describe discrete major events held such as press briefings or award schemes, or describe how published materials were used in a media campaign.

Most GreenCOM reports are available on line at the web site above.

The Environmental Education and Communication (GreenCOM) Project is funded and managed by the Center for Environment in partnership with the Center for Human Capacity Development and the Office for Women in Development of the Bureau for Global Programs, Field Support, and Research of the United States Agency for International Development (USAID), and by the USAID Regional Bureaus and Missions at collaborating sites. Technical Services for the GreenCOM/Communicating Climate Change in India Project (Contract No. PCE-Q-00-93-00069-00) are provided by the Academy for Educational Development, and subcontractors including Chemonics International, Global Vision, North American Association for Environmental Education, Futures Group, PRC Environmental Management, Porter Novelli, and the World Resources Institute.

# Table of Contents

<b>TABLE OF CONTENTS</b>	<b>i</b>
<b>REFINING THE MESSAGES/ DEFINING THE AUDIENCES</b>	<b>1</b>
More vs. Less Energy Efficient Firms	2
Public vs. private ownership of Firms	2
Large vs. small firms	2
Three Focus Groups	3
Three Audience Clusters	3
Cluster 1: Small Privates	3
Cluster 2: Large Privates	3
Cluster 3: Large Publics	4
Summary of Focus Group Findings for Message Refinement	4
Climate Change	4
Energy Efficiency	5
Cost savings and the up-front investment barrier	5
The need for more technical information	6
Indian Examples of Energy Efficient firms	7
Other messages: leadership, public image, and international markets	7
Barriers to energy efficiency	8
Trading of Carbon Emissions Reduction Units	8
Best Messages, audiences, and channels of communication	9
Messages and Information	10
Audiences	11
Channels of Communication	11
Reliable Sources	12
Suggestions for integrating these research results into USAID/India's Workplan	13
Possible Implementation of Communications	13
<b>ANNEX 1</b>	<b>15</b>
<b>PRETESTED MESSAGES/TEXT</b>	<b>15</b>
<b>ESSENTIAL CLARIFICATIONS</b>	<b>16</b>
Energy Efficiency	16
Power	16
Steel	16
Aluminum	16

Trading of Carbon Emissions Reduction Units	16
<b>ANNEX 2</b>	<b>16</b>
<b>PARTICIPANTS IN FOCUS GROUPS</b>	<b>16</b>
<b>ANNEX 3</b>	<b>20</b>
<b>RESULTS OF STATISTICAL ANALYSIS USING SURVEY OF INDUSTRIALISTS TO EXPLORE IMPORTANCE OF SIZE OF FIRM, OWNERSHIP AND ADOPTION OF ENERGY EFFICIENCY MEASURES</b>	<b>20</b>
<b>Table 1</b>	<b>22</b>
Study on CO <sub>2</sub> Emissions Mitigation and Climate Change, India	22
When Size is Defined by Number of Employees	22
Knowledge	22
Carbon Trading	23
<b>Table 2</b>	<b>25</b>
Study on CO <sub>2</sub> Emissions Mitigation and Climate Change, India	25
When Ownership is Defined by the % of Public Participation in the Business	25
Knowledge	25
<i>Impact of Global Warming:</i>	25
Energy Efficiency	26
Carbon Trading	26
<b>TABLE 3</b>	<b>29</b>
<b>Study on CO<sub>2</sub> Emissions Mitigation and Climate Change, India</b>	<b>29</b>
Knowledge	29
Impact of Global Warming:	29
Energy Efficiency	30
Carbon Trading	31
<b>ANNEX 4</b>	<b>20</b>
<b>SUGGESTED MESSAGES AND INFORMATION ON CARBON EMISSIONS TRADING FOR INDIAN INDUSTRIALIST AUDIENCES</b>	<b>20</b>
<b>Messages for Each Audience</b>	<b>34</b>
4A Best messages and information	34
4B Messages and information to avoid	36
4C Barriers to Action	36

# Proposed Messages for Indian Business Groups on CO<sub>2</sub> Emissions Mitigation

USAID/India hired GreenCOM, the Environmental Education and Communication Project of USAID, administered by the Academy for Educational Development in Washington D.C., to help it define effective messages to different stakeholders concerning carbon emissions trading.

GreenCOM contracted with a local market research firm, the Indian Market Research Bureau (IMRB) to interview the following types of stakeholders: 1) representatives of the energy intensive Indian industrial sectors: power, aluminum, steel, cement and sugar; 2) relevant government officials; 3) journalists writing for the business press; and 4) NGO's concerned with climate change issues. IMRB conducted 79 interviews focusing on attitudes and practices regarding plant energy efficiency, CO<sub>2</sub> emissions mitigation, climate change, and carbon emissions trading.

Analysis of the data collected permitted GreenCOM to propose disseminating a total of 25 messages, 19 for industry and 6 for government. The messages suggested for industry were originally divided into promotional and clarification messages.

The promotional messages were broken down into two sets: some messages expected to be more motivating to more efficient firms other messages for the less efficient firms. It was hypothesized that firms that were already taking energy efficiency measures might be interested in the next step of trading carbon emissions reduction credits. The less efficient firms may need to hear more direct messages related to energy conservation first. The motivator for all private firms was cost and profit related. Most firms understood that energy efficiency could help reduce costs and make profits, and that carbon emissions trading may be the icing on the cake in that it could bring in additional revenue.

The original research indicated that the less efficient firms are interested in how to become efficient, and that the more efficient firms are focusing on how they can take advantage of carbon emissions trading, if in fact it does happen. The proposed messages for the government and perhaps for government owned firms were essentially promotional and addressed the need for India to favor and promote carbon trading, regardless of the positions of developed nations. The tested messages are included in **Annex 1**.

The original research report, *Study of Stakeholders on CO<sub>2</sub> Emissions Mitigation*, is available through USAID and AED.

## Refining the Messages/ Defining the Audiences

As a further check of conclusions and to refine the messages suggested, GreenCOM proposed that focus groups be conducted with industrial representatives from the sub-sectors investigated. Focus groups were limited to the industrial sector as it was more likely that USAID would target that group in future communication interventions.

## **More vs. Less Energy Efficient Firms**

A scale of energy efficiency was developed using the energy efficiency practices adopted by interviewed firms in the first sample. The scale went from 0 to 3 points, with 3 as the most efficient. Average energy efficiency scores per industrial sector were as follows: 1.3 in the cement industry, 1.5 in the sugar industry, 1.8 in the steel industry, 2.0 in the aluminum industry, and 2.2 in the power industry. Thus, cement and sugar industries on average have adopted fewer efficiency measures than the steel, aluminum, and power industries.

Two categories were created based on the actions taken in regard to energy efficiency: 1) firms where no energy efficiency measures have been adopted, and 2) firms where some type of energy efficiency measure has occurred during three years preceding the survey.

## **Public vs. private ownership of Firms**

Another important variable was type of ownership. It was hypothesized that public firms, which may benefit from government protection and subsidies, react less strongly than private firms to financial incentives. Two categories of ownership were created: entirely privately owned firms, and firms with some degree of public sector ownership.

## **Large vs. small firms**

Size is defined in terms of the number of employees employed by the firm. Although data were collected on annual revenue and annual output, it is possible that these data are less reliable than number of employees. Two categories of size were created using the median as the criterion to create the two categories. The median is included in the top category, larger firm. In listing firms by size we found that the smaller firms are concentrated in the sugar and cement industries and the larger firms in the power, aluminum and steel industries.

**Annex 3** presents the results of statistical analysis on the responses to interviews conducted with 49 industrialists during the first phase of the research in three tables showing differences in response based on level of energy efficiency, ownership and size of firm.

In analyzing these data we found the following relationships:

- Sector and size are related: 95% of the sugar and cement firms are small.
- Sector and ownership are related: 85% of the sugar and cement sectors are entirely privately owned vs. 22 % of the firms in the other sectors collapsed.
- Size and ownership are related: 91% of smaller firms are private vs. 60% of the larger firms. The reverse is also true: most of the larger firms (60%) are public.

There is no relationship among the following:

- Sector and efficiency are not related: 41% of firms in the sugar and cement industries have adopted some energy conservation measures vs. 42% in the other sectors collapsed.
- Ownership and efficiency are not related: 61% of the private firms had done nothing to improve energy conservation vs. 58%, which had done something. Similar differences exist in the public firms.

- Size and efficiency are not directly related. However, the larger firms are clustered in the sectors (power, aluminum, and steel) that have taken more efficiency measures.

### **Three Focus Groups**

The first group brought together representatives from the sugar and cement industries near Chennai, where many of the industries are located. Thus it focuses on the smaller and less efficient firms.

The second focus group brought together representatives from private and public sector steel, aluminum and power industries in New Delhi where many of the concerned companies have their headquarters. This group presumably concentrated on larger and more efficient firms that were both public and private.

The third and final focus group, also held in New Delhi, brought together exclusively public sector steel, aluminum, and power industries. Thus we were able to see if there was a difference in attitudes from public companies.

Participants included both managers and technical officers from the different industries represented. The focus group results use sector as a proxy for energy efficiency. The list of firms participating in each one of the focus groups organized appears in **Annex 2**.

### **Three Audience Clusters**

Based on the analysis, and our original and focus group interviews, we created three “audience clusters” which show different behaviors and need different promotional and informational messages.

#### **Cluster 1: Small Privates**

The smaller private firms, mainly in the sugar and cement industries, have instituted some conservation measures and think conservation is worthwhile. However they are strapped by a lack of cash to make investments in new technologies. Some feel the government should reimburse them for actions that promote the public good, such as reducing carbon emissions. They also lack technical and financial information necessary to analyze where they could make more (even low cost) savings or how to enter the emissions trading arena. They are strongly motivated by profit, but have large barriers of the lack of cash and lack of access to the right types of information that would help them enhance their energy efficiency. They see carbon emissions trading as possibly lucrative but a long shot for them.

#### **Cluster 2: Large Privates**

The larger private firms are mainly in the sectors of power, aluminum and cement. Like the smaller, private firms, about half of them have taken some energy efficiency measures. They are strongly motivated by profit and also quite interested in emissions trading as a way to generate additional income. They are less constrained than the small firms by lack of capital for investment and have better access to technical and financial information. They are ready and eager to get more information and to participate in carbon emissions trading should it prove profitable.



### **Cluster 3: Large Publics**

The large publics are also in the power, aluminum and cement industries and they have taken energy efficient measures in about the same proportion as the large private firms. The main difference in this cluster is that is somewhat motivated by persuasive messages about social and environmental responsibility, about India's role as a leader in Asia. These firms also look more to the government for direction, although firms across all sectors and clusters sought direction from the government on energy efficiency and climate issues.

## **Summary of Focus Group Findings for Message Refinement**

### **Climate Change**

Messages intended to provide essential clarifications on climate change focused on:

1. defining CO<sub>2</sub> as a Greenhouse Gas (GHG) that contributes to global warming;
2. indicating that low-grade coal used in India for power generates CO<sub>2</sub> and consequently contributes to GHG;
3. suggesting that energy efficiency can reduce the emission of CO<sub>2</sub>, and;
4. suggesting that India has signed the Climate Change Convention calling for efforts to slow GHG.

All focus group participants understand the essential clarifications and agree with the general intent of the messages. However, firms in the aluminum, steel and power sectors point out that coal is the cheapest energy source available to Indian firms and that India in general and Indian firms in particular are and will continue to rely on coal as the primary source of energy.

Representatives from the sugar and cement industries in the focus groups suggested that it is important to provide historical details indicating how CO<sub>2</sub> emissions in India and elsewhere have changed over time. Furthermore, the issues raised by them suggest that future educational materials should shed light on whether there are specific (low-cost) ways of mitigating CO<sub>2</sub> emissions such as solvents or filters. Focus group participants from the aluminum, steel, and power sectors argued in the same direction suggesting that CO<sub>2</sub> emissions could also be reduced (off-site) with coal cleaning methods. Their argument, also endorsed by public sector industries from the aluminum, steel and power sectors, is that CO<sub>2</sub> emissions reduction can be achieved by improving coal quality via coal washeries.

Sugar and cement firms constitute in the context of focus group discussion both the smaller and the less energy efficient firms. The importance attributed by sugar and cement firms to less expensive technological options is substantiated by the statistical relationships found when analyzing the original survey data with industrialists by level of energy efficiency. As indicated in **Table 3 of Annex 3**, a significantly higher proportion of less efficient firms are interested in obtaining information on the type and cost of technologies that can help mitigate CO<sub>2</sub> emissions.

When a focus group moderator suggested that firms should conserve energy in order to be more environmentally friendly, sugar and cement representatives raised the issue of government subsidies and/or tax exemptions to offset the cost to industry to protect the environment. Environmental protection is seen as a government responsibility. These industries assume they cannot be expected to lose money to protect the environment.

Data in **Table 3 in Annex 3** indicates that industry representatives have a fair grasp of the causes and effects of global warming however, they have a number of misconceptions which could be corrected by simple straightforward information. Issues concerning global warming per se should not constitute the major focus of future communication/educational materials targeting industry. However facts about the science, impacts, and the international policy process should be made easily available to those who want them.

## **Energy Efficiency**

Messages addressing energy efficiency focused on:

1. stressing that energy efficiency can reduce operating costs, increase profits and competitiveness, and improve public image;
2. indicating areas where energy efficiency measures could be undertaken;
3. providing examples of energy efficient firms in India in different relevant sectors,
4. stressing that India should take control of its sustainable development and long term energy efficiency regardless of what developed nations do, and
5. suggesting that becoming energy efficient can boost the public image of the company with customers, clients, and competitors.

The first three messages were determined to be the most effective, however participants noted that smaller firms confront a barrier of lack of start up capital needed to invest in energy efficient equipment—a barrier that may need a financial rather than a communications solution.

## **Cost savings and the up-front investment barrier**

Most industrialists in the study were aware of the cost savings of becoming more energy efficient. However many of the smaller firms had not taken the necessary steps because this did not have the capital to purchase new equipment, even though they understood that their investment would be recaptured in lower energy costs.

Representatives from the sugar and cement sectors argued that the importance of energy efficiency is generally recognized. They argued that throughout the industrial sector, it is assumed that one unit of power saved is equal to two units of power generated. In addition, certain sectors have established industrial norms to determine how energy efficient they are. For example, in the cement industry what is used is one unit of power per ton of cement produced. The lower the power units, the higher the efficiency. In the sugar industry, the norm is expressed as the percentage of steam required to process sugar cane. Furthermore, focus group participants from the sugar and cement sectors suggested equipment that can help industry be more energy efficient. For example, high-pressure boilers and high efficiency multi-stage turbines and variable frequency hydraulic drives for the mills.

The sugar and cement sectors are well aware of the fact that energy efficiency will reduce operating costs and increase profits. However, as representatives from the aluminum, steel, and power sectors put it: “Awareness does not lead to adoption.” That is, Indian industries are aware of the importance of energy efficiency, but only a few have adopted measures of energy efficiency.” GreenCOM was interested in finding out what prevented firms from becoming more energy efficient. Representatives from the aluminum, steel, and power sectors offered the

following reasons for lack of adoption of energy efficiency measures: absence of a long term perspective, inability to scrap and replace existing plant and machinery, and unavailability of funds for capital investment.

Representatives from the sugar and cement sectors argued that the major barrier for the adoption of energy efficiency measures is the lack of capital. As they put it: “Industry in India is generally sick and it is fighting for its survival.” The question that is inferred from these concerns is what are the technologies and/or practices that be easily adopted, without high capital outlay for industries that have limited funds. The importance attributed by the smaller firms to capital for the adoption of energy efficient technologies and practices is also evidenced by the fact that a marginally significant higher proportion of the smaller firms visited during the stakeholder survey indicated that lack of funds was a barrier to the adoption of energy efficiency measures. (See **Table 1 in Annex 3**).

### **The need for more technical information**

The smaller firms were also less aware of both the technologies and the possibilities for altered manufacturing processes that could save energy than the larger firms, many of whom had already adopted such measures

All focus group participants agreed that energy efficiency might be achieved in the furnace, kiln, and boiler and in the process of production. However, since the furnace, the kiln and the boiler are all connected to combustion, the suggested message may be simplified by saying “energy efficiency may be achieved either in combustion or in the process. Improvement in combustion efficiency can happen in a furnace, kiln or a boiler.” Representatives from the sugar and cement sectors argued that in combustion, there might be the recovery of wasted heat (as well). Representatives from the aluminum, steel and power sectors also suggested the need to add two additional areas for energy efficiency: transportation and lighting. They argued that lighting itself in any industrial unit constitutes as much as 15% of the energy consumption and savings in this regard are possible.

Sugar and cement industry focus group members suggested that it would be helpful to tell industries exactly what type of combustion equipment-- furnaces, kilns and/or boilers-- was most energy efficient. Furthermore, information about the cost of such technologies would let industry determine whether they are affordable.

Further communication strategies should be specific about exactly how, when, and where energy can be saved in the industrial processes .The analysis of survey data indicated that specifics of energy conservation were crucial to future messages. This finding was statistically significant across three variables investigated: size of firm, ownership of firm and level of energy efficiency measures adopted by the firm.

Less efficient firms, in particular, have a limited perspective about where energy efficiency is possible. **Table 3 in Annex 3** shows that a significantly higher proportion of the less efficient firms believes that energy efficiency measures may be adopted with respect to the kiln. A significantly higher proportion of the more efficient firms indicated that energy efficiency measures are (also) possible elsewhere, for example in connection with boilers and the process of

production. The more efficient firms—those who have taken energy efficiency measures—are aware of more options for conserving energy than the firms whom have not begun the process.

### **Indian Examples of Energy Efficient firms**

Participants were asked to name companies in their sector that they looked to as being energy efficient. These are companies or plants that could be approached over the next few years and highlighted as good examples of practitioners of various energy saving techniques.

As a word of caution, representatives of public firms in the aluminum, steel and power sectors suggest that any Indian energy-efficient company may not necessarily meet world standards, despite their notoriety in the Indian context. That said, the list of Indian firms that are known for being energy efficient can be enlarged to include the following:

#### *Power*

Tuticorin Thermal Power Plant, Tuticorin, Tamil Nadu

Mettur Power Plant, Mettur, Tamil Nadu

NTPC, Raichur, Karnataka

APGENCO Vijayawada Thermal Power Plant, Vijayawada, Andhra Pradesh

#### *Aluminum*

Bharat Aluminum Company (BALCO), Korba

#### *Cement*

Madras Cement Plant, Alathiyur, Tamil Nadu

Gujarat Ambuja Cements, Gujarat

#### *Sugar*

Thiru Arooran Sugars, Tamil Nadu

Dharani Sugars

#### *Other Sectors*

Titanium Equipment and Anode Mfg Co. Ltd., Pondicherry (Caustic Soda Plant)

Representatives of public sector firms suggested deleting TEC, Mumbai from the list as this power plant uses gas, thus cannot be compared to the other coal-burning power plants on the list.

### **Other messages: leadership, public image, and international markets**

Representatives from the sugar and cement sectors preferred messages about the cost-competitiveness of becoming energy efficient to messages about the need for India to take leadership in greenhouse gas reduction in the South Asian area. Representatives from the private aluminum, steel and power sectors argued, however, that India could set an example regarding its fight against global warming just as Sweden is the example on many crucial issues for the rest of Europe.

Privately owned firms did not think that presenting a socially and environmentally sound public image would help them financially nor would it motivate them to invest in energy efficiency

measures. For representatives from the sugar and cement sectors, cost is more important than image. They feel consumers are only interested in the quality of the product, not in the means to produce it. Representatives from the aluminum, steel, and power sectors echoed this sentiment and argued that public image does not help in selling products. Thus they perceive the Indian consumer as less concerned with supporting firms with good social and environmental records than some Western consumers and feel that presenting an environmentally responsible corporate image of very little value in attracting customer.

Representatives from public sector businesses recognized a mandate to be socially responsible and to comply with international agreements.

We originally hypothesized that Indian firms might be motivated to conserve energy by the idea that it would make them more attractive to potential international partners if they had an ISO compliance rating. However, further analysis of data collected through the survey of stakeholders indicated that only 2% of the industrialists interviewed mentioned increasing/obtaining international markets as a reason for investing in energy efficiency. This was a concern only a minute fraction of the industrialists working in firms of a larger size (with 1,200 employees or more), and non-existent in the smaller firms (with less than 1,200 employees).

### **Barriers to energy efficiency**

As noted above the two major barriers are lack of capital to invest in energy saving technologies, and lack of information about which technologies to choose or how to make low cost alterations to manufacturing processes that would save energy. Another barrier for the adoption of (additional) energy efficiency measures among the firms classified as more efficient is the lack of skilled staff. (See **Table 3 in Annex 3.**)

### **Trading of Carbon Emissions Reduction Units**

Messages addressing carbon emissions trading (CET) focused on:

1. stressing that CET is the icing on the cake after energy efficiency has permitted operating cost reduction and profits;
2. indicating the basic rationale for CET;
3. providing examples of CET in other countries;
4. showing how to prepare for CET; and
5. suggesting various advantages of CET for companies and India.

Because the mechanics of a global trading scheme in carbon emissions credits has not been worked out or agree upon, there is much confusion over how such a scheme might work. Participants were interested in getting a step by step guide on how to prepare and market credits. Their eagerness for details and in some cases for the names of potential buyers, indicated that they were largely sold on the concept if they could profit from it. They simply don't know what the next step is.

As mechanisms are clarified and opportunities emerge, the Indian business community should be given the practical details of how to proceed. Those who are eager will lead and others may follow, depending on their experiences.

Information requested by participants included:

- Reasons for (lack of) Indian policy on CO<sub>2</sub> standards and its relationship to other norms for the control of other GHG emissions such as SO<sub>2</sub> and NO<sub>2</sub>. The information should be presented in such a way as not to discourage the adoption of appropriate CO<sub>2</sub> mitigation technologies due to the lack of Indian norms in this regard. The data presented in **Table 1 of Annex 3** indicates that larger firms as well as those owned by the public sector are used to responding to government regulation of SO<sub>2</sub>, NO<sub>2</sub> and particulate matter. The lack of regulations concerning CO<sub>2</sub> mitigation should not constitute a deterrent from engaging in energy efficiency measures and practices that may lead to CO<sub>2</sub> mitigation and eventually to CET.
- Explanation of the new type of CET. In the early CET, developed country companies provided specific technology to a developing country company to offset some of its emissions. In the newer type of CET now being discussed, emissions credits are traded globally through one of a number of exchanges such as Natsource.
- Address the fairness or equity issue—is CET simply a way to allow developed nations to maintain their high-energy lifestyle and shift the burden of CO<sub>2</sub> mitigation to developing nations. **Table 2 in Annex 3** indicates that a significantly higher proportion of the firms owned by the public sector were less favorable to CET because they felt it was unfair to developing nations.
- Examples of projects that qualify for emissions trading with a broker. What exactly is needed to qualify? Of specific interest to representatives from the sugar and cement sectors is whether or not projects using non-conventional energy sources would qualify for CET. Would eligible projects be limited to new plants? Or could projects modernize old plants? Are carbon-sink type projects such as reforestation eligible?
- Clarification on what “additionality” means and how it would be established. What is the baseline from which India would calculate reductions of CO<sub>2</sub> emissions?
- Are there consultants in India who can help establish suitable monitoring methodologies and conduct periodic reviews of project implementation?
- Who are some specific buyers who have engaged in purchasing CERs? Study participants were interested in the reputation and intent of potential buyers.

Focus group participants said that examples of countries and foreign companies engaged in carbon emissions trading are illustrative, but not convincing. Consequently, examples of Indian companies that may be already engaged in CET, in any shape or form, would be more useful and help develop confidence in the industrial sector that carbon emissions trading is in fact possible. TISCO, a steel producing company based in Jamshedpar, was offered as such an example in the focus groups. Representatives of the sugar and cement sectors are interested in following the story as progress is made.

Any messages concerning how CET can help the Indian economy in general by providing jobs and mitigating social and environmental problems are acceptable to all focus group participants.

## **Best Messages, audiences, and channels of communication**

The research suggests that future communication interventions should be designed taking into account the following concerns:

- Focus on the messages that have tested as most persuasive to Indian industrialists and develop the types of information that they tell us they need.
- While some messages are the same across industrial audiences, others must be tailored more specifically to the type of firm (energy inefficient vs. energy efficient) and different levels of personnel within each firm (managers or technicians) may need different types of information.
- The channels through which the messages and information are provided should be the ones that the audiences have identified as channels with which they are comfortable and which they consider credible.

## Messages and Information

The messages most likely to be successful according to our research can be grouped as follows:

### *Global Warming:*

- Messages or information about the science or international politics of global warming are not persuasive to industrialists. However, information on the science, the possible impacts on India, and the current status of negotiations should be readily available to them.

### *Energy Efficiency:*

- Saving Energy saves money;
- These are the best methods (and least expensive ways) for your sector to save energy (followed by specific proven practices for each sector);
- Here are the costs and pay back times of those methods;
- Being energy efficient will make you attractive to investors;
- Here is where you can get technical and financial assistance to become more energy efficient.

### *Carbon Emissions Trading:*

- Carbon emissions trading is a way to make money;
- CET will give you access to new technologies and markets;
- CET could help the Indian economy;
- Here is how emissions trading will work;
- These are the kinds of projects eligible;
- This is how to get ready for emissions trading;
- These are some of the potential buyers for emissions credits;
- This is where you get the financial expertise needed to make a trading deal.

A chart showing messages and information desired by focus group representatives both larger and smaller firms is shown in Table 4A of Annex 4. Table 4B offers some messages to avoid, based on their reception by the focus groups; Table 4 C gives some barriers to action that may need more than information and communication to overcome.

## **Audiences**

It is clear that a communications effort should develop separate messages for firms in different industrial sectors and/or of different size, which ever proves to be more practical. In general, the research found that the sugar and cement sectors contain both the less energy efficient and the smaller firms, and that the aluminum, steel, and power sectors contain the more efficient and the larger firms.

Smaller firms confront different barriers than larger firms when it comes to adopting energy efficiency measures. The biggest difference is access to funds to adopt energy efficiency measures. Smaller firms, which may be also struggling for survival in the Indian market, find it more difficult to have access to the required funds to adopt energy efficiency practices and equipment. This is less of a problem for the larger firms. Smaller firms are also less likely to have the sophisticated financial management personnel necessary to take advantage of emissions trading schemes (although this could be provided through industry associations). They want to achieve the savings of greater energy efficiency, but may need some help with the up front costs of new equipment and technical advice on which equipment to purchase and on how to fine tune their processes to save energy without much capital investment. Thus for the smaller firms, messages should focus on energy efficiency and how to get it.

The larger and more efficient firms may be ready for messages about emissions trading as the “icing” on their cake of accomplished and planned energy efficiency measures. They should be kept apprised of developments in the mechanics of emissions trading. Clearinghouses that put them in touch with expertise on how to certify and monetize emissions credits can best serve them. This group of industrialists could also be influential with government agencies in speaking to the benefits to India of emissions trading schemes.

Messages should be designed differently for public and private firms. Private firms of any size are clearly motivated by making a profit. If energy efficiency and carbon emissions credits can help them do that, they are will be favorable and only need to know the specifics of how to go about the necessary technical and financial steps. For the most part Indian firms are convinced that energy efficiency can help them financially and they are very interested in the possibility that emissions trading will also be profitable. Public firms are less motivated by profit, but are more strongly motivated by a sense of social responsibility. Whether this sense of responsibility is strong enough to motivate action at the plant level is uncertain. They are accustomed to taking direction from above and will certainly attempt to follow any new policies on energy efficiency or emissions trading.

Our original survey showed clearly that within a firm, different types of information are needed by two sets of clients: management and technicians. Financial and policy messages should target management, and technological and process information should target technicians.

The suggestion is not to present completely different information to different target groups, but rather, to emphasize one message to one group and a different message to the second audience depending on their needs. It is matter of degree and not of exclusivity.

## **Channels of Communication**

The table below presents the distribution of channels preferred for the dissemination of information among 49 industrialists interviewed prior to the focus group discussions on carbon emissions trading. It indicates that the vast majority prefers a printed document or a document



that can be kept after reading for future reference. These may be newsletters, brochures, or booklets (a few even suggested CD-ROM's) The second most commonly mentioned channel is training workshops and seminars.

Other electronic media (emails, Web sites) is hardly mentioned by the industrialists interviewed. Although electronic media is not yet in widespread use by the target audiences, it offers many advantages in distributing information and keeping it up to date. Future communication strategies should continue to develop electronic information but understand that the target audience will probably not find it by themselves. It may have to be downloaded and printed out at certain distribution points. Or the communicators may need to call the attention of the audience to its availability on the web.

### **Channels Preferred for Future Information on Energy Efficiency and CET**

<b>Type of Channel</b>	<b>Number of Respondents</b>	<b>Percentage of Respondents</b>
Printed documents	34	74%
Workshops and seminars	26	57%
Email	5	11%
Web Page	3	7%

### **Reliable Sources**

The same survey collected information on the most credible sources for providing energy efficiency and emissions trading information. The following table presents the responses.

### **Credible Sources for Future Information on Energy Efficiency and CET**

<b>Source</b>	<b>Number of Respondents</b>	<b>Percentage of Respondents</b>
Indian Government	24	49%
Industry Associations	9	18%
Donors	4	8%
NGOs	2	4%

Ironically, the most trusted source on information is the Indian government, which is also one of the sources that is least interested in promoting emissions trading. The government does promote energy efficiency, yet public owned companies tend to be less efficient than their private counterparts because they do not have the cost savings incentive to conserve energy.

Industry associations have taken the leadership in promoting both energy efficiency and carbon emissions trading. These research results suggest that any communications that bear the logo or endorsement of a government agency will be more highly regarded by the target audience than those that do not. Thus it may be worth considerable effort to get government agencies to endorse and apply their logos to materials produced by industry associations on these topics.

## **Suggestions for integrating these research results into USAID/India's Workplan**

GreenCOM's involvement with this project was limited to conducting operational research on the attitudes and information needs of several groups of stakeholders and in a separate effort to conducting a series of briefings for the business press in India. Since our contract did not include a comprehensive communication and information campaign, we agreed with USAID India to supply this document in hopes it could be used to help other communication and information efforts underway by other contractors to be more effective.

It is useful here to briefly describe GreenCOM's methodology a five-step social marketing process, in doing effective communication and education interventions.

**Step1: Assessment** Identify why the people we want to influence behave the way they do. What are their concerns, what blocks them from taking the actions we suggest? What motivates them to take these actions? The research presented in this report is an assessment.

**Step 2: Design and Planning** Use the information from step 1 to develop messages and incentives to appeal to the various audiences. This step was taken when we developed the messages in Annex 1 to present to the focus groups.

**Step 3: Pretest and Revise** the messages to work better with the audiences. This step was taken by analyzing the results of the focus groups and creating the three audience clusters and the messages in Annex 4.

**Step 4 Implement** Our work stopped short of implementation. We are now suggesting ways that these tested and revised messages can be integrated into the ongoing USAID work in India.

**Step 5: Monitor and Evaluate** Following steps 1-3 provides a better change of success, but doesn't guarantee it. It is important to follow up on the effectiveness of the implementation of these messages and to monitor their impact. This should be done during the course of implementation so that errors can be corrected, rather than waiting until the end.

## **Possible Implementation of Communications**

We are sharing our findings with three USAID contractors: Louis Berger Group, Winrock, and AED and discussing with them how using the messages we developed for these audience might enhance their work. We will also share the results with FICCI and ICI which whom we worked on this project.

USAID is currently is currently working with energy conservation in India with several contractors under several different delivery orders. The projects range from industrial, to urban, to consumer conservation efforts. We propose that it might be useful to use GreenCOM's findings and methods to unite and enhance USAID efforts towards industrial energy conservation India. GreenCOM could work closely with USAID contractors to help them develop more effective persuasive messages and methods of delivery and well as to help them meet the needs of each sub group within the business community for factual information.

We suspect that much of the information that the businessmen in our focus groups requested exists, but that it has not been pulled together and packaged for the audience that wants to use it. On the other hand much of the information they seek—especially on carbon emissions trading—does not yet exist. The challenge here is to develop effective channels of getting this information to the stakeholders as it is developed as well as to develop feedback loops for the stakeholders to keep making their specific information needs known.

GreenCOM could also conduct further research and monitoring, using this survey as a baseline, to understand how various USAID interventions affect the knowledge, attitudes, practices, of business leaders regarding energy conservation and emissions trading opportunities.

In short, GreenCOM could assist all USAID efforts in industrial energy conservation in India by:

1. Helping to create a coherent, consistent, positive, and effective image
2. Further developing a set of persuasive messages for different groups.
3. Using this assessment as a baseline, continue to monitor knowledge, attitudes and behaviors towards energy conservation in the business community.
4. Make specific suggestions for each project on how to develop messages and information based on the needs of the business groups.
5. Maintaining feedback mechanisms by which business groups can express their changing needs for information.
6. Assist in the design of training projects so that the most useful information for a specific audience is packaged in the course.

## **Annex 1**

### **Pretested Messages/Text**

## Essential Clarifications

- CO<sub>2</sub> is one of the Green House Gases that contributes to global warming.
- Since low-grade coal, which is a big CO<sub>2</sub> emitter, is used in India for power, energy efficient firms can do a lot to reduce CO<sub>2</sub> emissions.
- Reducing CO<sub>2</sub> emissions slows global warming.
- India has signed the Climate Change Convention calling for efforts to slow Greenhouse Gas Emissions.

## Energy Efficiency

- You can SAVE MONEY (reduce operating costs) by being more energy efficient.
- You can consequently increase profits and competitiveness.
- Areas where energy efficiency may be achieved: furnace, kiln, boiler, and process.
- Indian industry is aware of the importance of energy efficiency. There are highly energy efficient firms in India. Examples from different sectors include:

### Power

- Punjab State Electricity Board
- Ramangudndam Thermal Power Plant
- BSES, Mumbai
- TEC, Mumbai
- NTPC, Dadri

### Steel

- Rashtriya Ispat Nigam, Vizag
- Bhilai Steel Plant (SAIL), Bhilai

### Aluminum

- Hindalco, Renukoot
- NALCO, Angul

- In the cement industry, any companies have adopted the energy efficient dry process, and in the sugar industry, companies have adopted co-generation of power.
- Energy efficient firms are environmentally friendly and this improves their public image.
- India must take control of its regional climate regardless of developed nations perceptions, intentions and actions.

## Trading of Carbon Emissions Reduction Units

- Regardless of the international agreement made by governments on the Kyoto Protocol, there will probably be some form of carbon emissions trading.
- Besides saving money by being energy efficient, you can MAKE MONEY by selling carbon emissions reduction credits. This is the frosting on the cake.

- Case Study: TISCO, one Indian firm is already involved in negotiating CET with Japanese counterpart.
- Carbon emissions trading is coming: Here is HOW it works:
  - Industrialized nations have agreed to limit between 2008-2015 their GHG emissions to 5% below their 1990 levels.
  - They can achieve GHG emissions reduction by increasing energy efficiency, adopting greater use of renewable energy sources, enhancing the capacity of carbon sinks, making lifestyle changes, and also by investments in developing countries leading to Certified Emissions Reductions (CERs), or buying of extra emissions from the latter.
  - Value may be imputed to a certified credit and that can be sold to buyers on the international market.
  - Investments made by developed nations need to result in emissions reductions additional to any that would have occurred in the host country in the absence of the investment.
  - To determine additionality, baselines must be defined. Baselines will serve a reference point for the reductions achieved. The establishment of unbiased verification entities to ensure correct reporting of credits is a necessity.
  - For credit to be granted, activities undertaken must reflect real, measurable and long-term benefits related to the mitigation of climate change.
  - Procedures for transferring and sharing credits need to be negotiated, based on guidelines.
  - Operational entities to certify the emissions reductions will be designated in the future.
- Examples of CET benefits in other countries include the following:
  - Landfill gas electricity generation in the USA with a transaction equivalent to \$2.5 million;
  - Changing cattle field in Uganda with a transaction equivalent to \$10 million;
  - Forest conservation in Bolivia with a transaction equivalent to \$25 million.
- Ways to prepare for CET and be ready when it the ball gets rolling:
  - Keep complete records of ENERGY EFFICIENT/CET project
  - Ensure that real, measurable, and long-term CHG emissions reduction would result from project.
  - Provide evidence that funding for project was not concessional (either developmental and/or environmental assistance), and that project would have not been possible without funds from Certified Emissions Reductions (CERs).
  - Obtain letter of approval for project from the highest government office.
  - GHG emissions reductions should be verified using a methodology endorsed by industry. Have a third party establish suitable monitoring methodology and conduct periodic reviews.
  - Establish clear ownership of CERs.
  - Accurately represent all project costs and revenues, including projections, when marketing a project. Impartial brokers may be helpful in this regard.
  - Keep ready information on credit worthiness of project owners.
  - Obtain additional endorsement of the project through international entities, industry associations, government and multilateral climate change funds.

- International buyers provide both funds and technology.
- Boost to industrial sectors via CET will make India more competitive in world market.
- Technology and capital infusion via CET will help Indian economy providing capital and jobs to mitigate social and environmental concerns.

## **Annex 2**

### **Participants in Focus Groups**



**Panel I (Participants from the Sugar & Cement Industries)**

<b>Company</b>	<b>Participant</b>
Tamil Nadu Cement Corporation Ltd.	Mr. P. Muthuswamy, General Manager
Dharani Sugars & Chemicals Ltd.	Mr. S. Viswanathan, Deputy General Manager (Works)
Sudalagunta Sugars Ltd.	Mr. K. Suresh Babu, Manager (Production)

**Panel II (Participants from the Private Sector, Steel, Aluminum & Power Industries)**

<b>Company</b>	<b>Participant</b>
Hindalco Industries Ltd.	Mr. Mihir Moitra, General Manager (Environment)
BSES Ltd.	Mr. S.S. Dua, Director (Technical)
National Thermal Power Corporation Ltd.	Mr. V.N. Chaudhary, Deputy General Manager
National Thermal Power Corporation Ltd.	Mr. Ramgopal

**Panel III (Participants from the Public Sector Steel, Aluminum & Power Industries)**

<b>Company</b>	<b>Participant</b>
Maharashtra State Electricity Board	Mr. G.G. Dalal, Chief Engineer
Steel Authority of India Ltd.	Mr. J. Kumar, Additional Director (Environment)
Steel Authority of India Ltd.	Mr. C.L. Sharma, Joint Director (Projects)
Steel Authority of India Ltd.	Mr. R.N. Rawat, Senior Deputy Director

## **Annex 3**

### **Results of Statistical Analysis Using Survey of Industrialists to Explore Importance of Size of Firm, Ownership and Adoption of Energy Efficiency Measures**

In this report statistically significant differences are those where the confidence interval is .05 or less and it is expressed as the p value. A marginal statistical difference is that for which the confidence interval ranges from .06 to .10. The confidence level is the proportion of error one makes by assuming the difference is significant and cannot be found merely by chance. A significance level of .05, for example, implies that one is making 5% error in assuming that the difference in question is statistically significant.

**Table 1****Study on CO<sub>2</sub> Emissions Mitigation and Climate Change, India**

**Question Investigated: Does Size Matter?**  
**Results of Analysis of Industrial Respondents (49 cases)**  
**November 2000**

(Figures are percentages of respondents answering yes to the item listed where p is the significance level)

**When Size is Defined by Number of Employees**

Median Split: Companies with less than 1200 employees are considered **Small**  
 Companies with 1200+ employees are considered **Large**

**Knowledge**

<b><i>ENERGY EFFICIENCY can be done in:</i></b>	<b><i>Smaller</i></b>	<b><i>Larger</i></b>	<b><i>p</i></b>
Furnace	0%	36%	.002
Kiln	41	32	
Boiler	54	44	
Process	68	84	
Turbines	0	4	
Power transmission	0	0	

<b><i>Impact of CO<sub>2</sub> emissions:</i></b>			
Climate change	59	68	
Human health	23	12	
Misconceptions	14	8	
Affects nature	5	0	
Little/no effect	0	5	
No response	9	4	

<b><i>Impact of Global Warming:</i></b>			
Ocean level goes up	36	36	
Temperatures raise	4	16	
Melting polar caps	27	36	
Affects human life and agriculture	32	12	
Little/no impact	36	36	
No response	0	4	

	<i>Smaller</i>	<i>Larger</i>	<i>p</i>
<b>Barriers for implementing ENERGY EFFICIENT measures:</b>			
Lack of funds	77	44	(.07)
Lack of technology/equipment	63	56	
Type of fuel	18	44	
No skilled staff	9	4	
Redtape	0	0	
No response	0	0	

<b>Motivations for investing in ENERGY EFFICIENT measures:</b>			
Profits	46	68	(.08)
Low cost/financial	54	36	
Environmental impact	82	48	.05
Getting better product	0	16	.00
International markets	0	4	
Company image	36	28	

<b>Environmental concerns when deciding about ENERGY EFFICIENT:</b>			
Particulate matter emis	59	76	
NO <sub>2</sub> and SO <sub>2</sub>	54	80	.03
COD/BOD	54	68	
Effluents	46	64	
CO <sub>2</sub> emissions	50	56	
Noise	41	52	
Toxic substances	0	20	(.07)
No response	0	0	

<b>Information Needs Concerning CO2 mitigation:</b>			
Cost and economics of available technologies	73	76	
What is the current climate change pol	64	76	
What technologies mitigate CO <sub>2</sub> emis	64	72	
Funding options and access to funding mec	50	76	
Everything in detail	0	0	
No response	4	0	

### **Carbon Trading**

Is climate change important to company?	73	52	
Knows about Kyoto	45	75	(.12)

Views on Convention to Allow Trade  
of Carbon Emissions Mitigation

<i>More Favorable Reaction</i>			
Welcomes Kyoto Protocol	73	56	(.10)
Helps to protect the earth making it sustain	5	0	
India must be energy efficient	0	4	
Permits foreign investment	0	0	
<i>Caveats</i>			
Welcomes if it permits total tech transf	4	8	
<i>Less Favorable Reaction</i>			
Fraudulent, keeps lifestyle of rich nat	0	8	
Irrelevant	9	4	
There is no clear baseline	0	0	
Reduces possibility of electrification	0	0	
No response	4	20	.002
<i>Relevance of CDM</i>			
Access to funds	50	64	
Access to technology	68	56	
Reduces polluting emissions	4	8	
Shows concern global environment	9	12	
Government must still decide if relevant	0	4	
No response	9	8	
<i>Information Needs to Judge CDM</i>			
Technical	59	32	
As detailed as possible	9	32	
How baseline will be fixed	0	0	
How CDM is implemented	0	0	
CDM case studies	4	4	
How to trade	0	0	
Timeline	0	0	
Government position	0	0	
None	9	20	
No response	5	8	
<i>Role to be Played by India in CDM</i>			
Main role	68	44	
Lay guidelines	0	0	
Adopt latest/cleanest technology	0	8	
None	9	20	
No response	4	24	
ENERGY EFFICIENT Measures Adopted			

**Table 2****Study on CO<sub>2</sub> Emissions Mitigation and Climate Change, India**

**Question Investigated: Does Ownership Matter?**  
**Results of Analysis of Industrial Respondents (49 cases)**  
*November 2000*

(Figures are percentages of respondents answering yes to the item listed where p is the significance level)

**When Ownership is Defined by the % of Public Participation in the Business**

Two categories were created:

1. Entirely private (37 cases)
2. With partial or total government ownership (12 cases)

**Knowledge**

<b><i>ENERGY EFFICIENCY can be done in:</i></b>	<b><i>Private</i></b>	<b><i>Public</i></b>	<b><i>p</i></b>
Furnace	8	50	.004
Kiln	32	50	
Boiler	46	50	
Process	78	75	
Turbines	0	8	
Power transmission	0	0	

<b><i>Impact of CO<sub>2</sub> emissions:</i></b>			
Climate change	60	83	
Human health	19	8	
Misconceptions	13	0	
Affects nature	8	0	
Little/no effect	3	0	
No response	5	8	

<b><i>Impact of Global Warming:</i></b>			
Ocean level goes up	35	42	
Temperatures raise	11	8	
Melting polar caps	32	33	
Affects h life and ag	22	17	
Little/no impact	0	0	
No response	36	42	

## Energy Efficiency

<b>Barriers for implementing ENERGY EFFICIENT measures</b>	<b>Private</b>	<b>Public</b>	<b>p</b>
Lack of funds	60	58	
Lack of technology/equi	68	50	
Type of fuel	32	33	
No skilled staff	8	0	
Redtape	0	0	
No response	0	0	

<b>Motivations for investing in ENERGY EFFICIENT measures:</b>			
Profits	54	58	
Low cost/financial	46	33	
Environmental impact	65	58	
Getting better product	16	8	
International markets	3	0	
Company image	30	33	

<b>Environmental concerns when deciding about ENERGY EFFICIENT:</b>			
Particulate matter emis	62	91	(.07)
NO <sub>2</sub> and SO <sub>2</sub>	66	58	
COD/BOD	62	50	
Effluents	54	50	
CO <sub>2</sub> emissionss	54	42	
Noise	48	33	
Toxic substances	5	25	(.09)
No response	0	0	

<b>Information Needs Concerning CO2 mitigation:</b>			
Cost and economics of available technologies	73	75	
What is the current climate change pol	70	67	
What technologies mitigate CO <sub>2</sub> emis	67	67	
Funding options and access to funding mec	59	75	
Everything in detail	3	0	
No additional info needed	3	8	
No response	4	0	

## Carbon Trading

Is climate change important to company?	55	75	
Knows about Kyoto	55	75	
Views on Convention to Allow Trade of Carbon Emissions Mitigation			

<i>More Favorable Reaction</i>			
Welcomes Kyoto Protocol	65	50	
Helps to protect the earth making it sustainable	0	0	
India must be energy efficient	0	8	
Permits foreign investment	0	0	
<i>Caveats</i>			
Welcomes if it permits total tech transfer	5	8	
<i>Less Favorable Reaction</i>			
Fraudulent, keeps lifestyle of rich nat	0	17	
Irrelevant	5	8	
There is no clear baseline	0	0	
Reduces possibility of electrification	0	0	
No response	16	17	
<i>Relevance of CDM</i>			
Access to funds	57	58	
Access to technology	70	42	
Reduces polluting emissions	5	8	
Shows concern global environment	8	17	
Government must still decide if relevant	0	8	
No response	3	17	
<i>Information Needs to Judge CDM</i>			
Technical	43	42	
As detailed as possible	22	25	
How baseline will be fixed	0	0	
How CDM is implemented	0	0	
CDM case studies	5	0	
How to trade	0	0	
Timeline	0	0	
Government position	3	0	
None	13	17	
No response	5	8	
<i>Role to be Played by India in CDM</i>			
Main role	54	58	
Lay guidelines	3	0	
Adopt latest/cleanest technology	3	8	



	Policy for CDM for all businesses	3	0	
	Increase CDM awareness in country	3	0	
	None	13	17	
	No response	13	17	
	ENERGY EFFICIENT Measures Adopted	40	42	

**Table 3**

**Study on CO<sub>2</sub> Emissions Mitigation and Climate Change, India**

**Question Investigated: Does Efficiency Matter?**  
**Results of Analysis of Industrial Respondents (49 cases)**  
*November 2000*

(Figures are percentages of respondents answering yes to the item listed where p is the significance level)

Two categories were created:

1. No energy efficiency measures adopted (29 cases)
2. Some type of energy efficiency measure adopted (20 cases)

**Knowledge**

<b><i>ENERGY EFFICIENCY can be done in:</i></b>	<b><i>Less Efficient</i></b>	<b><i>More Efficient</i></b>	<b><i>p</i></b>
Furnace	24	10	
Kiln	55	10	.002
Boiler	31	70	.01
Process	65	95	.01
Turbines	0	5	
Power transmission	0	0	

<b><i>Impact of CO<sub>2</sub> emissions:</i></b>			
Climate change	65	65	
Human health	14	20	
Misconceptions	7	15	
Affects nature	7	5	
Little/no effect	3	0	
No response	10	0	

<b><i>Impact of Global Warming:</i></b>			
Ocean level goes up	31	45	
Temperatures raise	17	0	(.07)
Melting polar caps	35	30	
Affects human life and agriculture	21	20	
Little/no impact	0	5	
No response	45	25	

## Energy Efficiency

<b><i>Barriers for implementing ENERGY EFFICIENT measures</i></b>	<b><i>Less Efficient</i></b>	<b><i>More Efficient</i></b>	<b><i>p</i></b>
Lack of funds	65	50	
Lack of technology/equipment	65	60	
Type of fuel	27	40	
No skilled staff	0	15	
Redtape	0	0	
No response	0	0	

<b><i>Motivations for investing in ENERGY EFFICIENT measures:</i></b>			
Profits	52	60	
Low cost/financial	38	50	
Environmental impact	66	60	
Getting better product	17	10	
International markets	0	5	
Company image	24	40	

<b><i>Environmental concerns when deciding about ENERGY EFFICIENT:</i></b>			
Particulate matter emis	72	65	
NO <sub>2</sub> and SO <sub>2</sub>	72	55	
COD/BOD	62	55	
Effluents	45	65	
CO <sub>2</sub> emissions	48	55	
Noise	48	40	
Toxic substances	13	5	
No response	0	0	

<b><i>Information Needs Concerning CO2 mitigation:</i></b>			
Cost and economics of available technologies	83	60	(.10)
What is the current climate change pol	76	60	
What technologies mitigate CO <sub>2</sub> emis	79	50	(.06)
Funding options and access to funding mec	76	45	.03
Everything in detail	3	0	
No additional info needed	0	10	
No response	0	0	

## Carbon Trading

	<i>Less efficient</i>	<i>More efficient</i>	<i>p</i>
Knows about Kyoto	59	63	
Views on Convention to Allow Trade of Carbon Emissions Mitigation			
<i>More Favorable Reaction</i>			
Welcomes Kyoto Protocol	65	55	
Helps to protect the earth making it sustainable	0	5	
India must be energy efficient	3	8	
Permits foreign investment	0	0	
<i>Caveats</i>			
Welcomes if it permits total tech transfer	3	10	
<i>Less Favorable Reaction</i>			
Fraudulent, keeps lifestyle of rich nat	7	0	
Irrelevant	7	5	
There is no clear baseline	0	0	
Reduces possibility of electrification	0	0	
No response	17	15	
Relevance of CDM			
Access to funds	52	65	
Access to technology	59	70	
Reduces polluting emissions	10	3	
Shows concern global environment	14	5	
Government must still decide if relevant	3	0	
Tax benefits	0	0	
No response	10	5	
Information Needs to Judge CDM			
Technical	41	45	
As detailed as possible	28	15	
How baseline will be fixed	0	0	
How CDM is implemented	0	10	
CDM case studies	5	0	
How to trade	0	0	
Timeline	0	0	
Government position	3	0	
None	14	15	
No response	10	3	
Role to be Played by India in CDM			
Main role	52	60	
Lay guidelines	3	0	
Adopt latest/cleanest technology	0	10	

Policy for CDM for all businesses	3	0	
Increase CDM awareness in country	3	0	
None	21	5	
No response	17	10	

## **Annex 4**

### **Suggested Messages and Information on Carbon Emissions Trading for Indian Industrialist Audiences**

## Messages for Each Audience

Based on focus group research we have developed a chart showing the most persuasive messages and the information needs of two audiences—the larger firms and the smaller firms (see 4B). We have also listed some of the messages and information that should not be presented to these groups because it is not persuasive or not wanted (see 4B). Table 4C identifies barriers to successful implementation, which need to be addressed outside the realm of communication and information.

### 4A Best messages and information

	Small Private Firms	Large Private Firms	Large Public Firms
<b>Persuasive messages</b>			
Climate Change	India will suffer from a changing climate.	India will suffer from a changing climate (Note: <b>no</b> message about climate change was especially motivating to industrialists. However, any messages put out should focus on impacts on India rather than on the global environment.)	India has a responsibility to develop sustainably. India signed the climate Change Convention.
Energy Efficiency	Saving energy saves money.	Saving energy saves money	
	Here are the best ways to save energy/money in your industry.	Here are the best ways to save energy/money in your industry.	
			Companies have a social and environmental responsibility to conserve energy.
	Having energy saving technologies will make you more attractive to investors.		
Carbon Emissions Trading	Carbon emissions trading is a way to make money.	Carbon emissions trading is a way to make money.	
	CET will give you access to new technologies		
	CET will give you access to new funds		

	Here is an example of a company that made money by trading carbon emissions reduction credits	Here is an example of a company that made money by trading carbon emissions reduction credits	
	CET could improve the Indian economy	CET could improve the Indian Economy	
<b>Information needs</b>			
Climate Change	Factual, concise information on the science, and international efforts available on demand.	Factual, concise information on the science, and international efforts available on demand.	Factual, concise information on the science, and international efforts available on demand.
Energy Efficiency	How to implement low cost energy savings e.g., alterations in production process.		
	How to get up-front capital (loans) for efficiency improvements.		
		Industries can also save energy in transportation and lighting.	
Carbon Emissions Trading		How will we know if our CO2 savings are “additional” thus eligible to trade?	
	What is India's policy on CET?	What is India's policy on CET? The Indian government is seen as the main player in CET.	What is India's policy on CET?
	What new technologies mitigate CO2 emissions?	What new technologies mitigate CO2 emissions?	
	What are the costs and economics of current technologies to mitigate CO2 emissions?	What are the costs and economics of current technologies to mitigate CO2 emissions?	
	Examples of projects that qualify for CET. What is needed to qualify?	Examples of projects that qualify for CET. What is needed to qualify?	
	Who are the buyers for CET?	Who are the buyers for CET?	
	Who has the expertise to certify and monetize the credits?	Who has the expertise to certify and monetize the credits?	



#### 4B Messages and information to avoid

	<b>Small Private Firms</b>	<b>Larger Private Firms</b>	<b>Large Public Firms</b>
Climate Change	Detailed scientific or international policy explanations unless requested.	Detailed scientific or international policy explanations, unless requested.	Detailed scientific or international policy explanations, unless requested.
Energy Efficiency	Energy efficiency will improve your image with your customers.	Energy efficiency will improve your image with your customers.	
	India must be energy efficient.	India must be energy efficient.	
		Being energy efficient will make you more attractive to potential international partners.	
Carbon Emissions Trading	India should take the lead in the Asian region in pioneering CET.		
	Carbon emissions trading will open you to international markets.		
	Indian businesses should be concerned with the global environment.	Indian businesses should be concerned with the global environment.	

#### 4C Barriers to Action

	<b>Small Private Firms</b>	<b>Large Private Firms</b>	<b>Large Public</b>
Climate Change	Wait and see what position the government takes in the international negotiations	Wait and see what position the government takes in the international negotiations	Wait and see what position the government takes in the international negotiations
Energy Efficiency		India uses low-grade coal, which emits high levels of CO <sub>2</sub> . Will continue to use this fuel for energy security reasons.	India uses low-grade coal, which emits high levels of CO <sub>2</sub> . Will continue to use this fuel for energy security reasons
	Coal should be cleaned before it comes to the plant	Coal should be cleaned before it comes to the plant	
	Not enough capital to invest in new energy efficient technologies		
	Not enough knowledge of new technology and equipment		

Carbon Emissions Trading	No model of how it works.		
	Lack of staff skilled in accrediting and monitizing credits	Lack of staff skilled in accrediting and monitizing credits	
	No government regulations for CO2 (firms are geared to respond to government regulations)		
	Idea that CET could be a way for developed nations to continue their energy intensive lifestyles at our expense.		

Communicating Climate Change in India  
Contract No. PCE-Q-00-93-00069-00  
Task Order 807

